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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,593	09/28/2004	Mark D. Fairchild	P04-01	5592
25759	7590	01/26/2007		
JOHN J. ELNITSKI, JR. 225 A SNOWBIRD LANE BELLEFONTE, PA 16823			EXAMINER LEE, BENJAMIN P	
			ART UNIT	PAPER NUMBER
			3641	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/711,593	Applicant(s) FAIRCHILD, MARK D.	
	Examiner Benjamin P. Lee	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 1/11/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 18-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6 and 8 is/are rejected.
- 7) ☒ Claim(s) 3, 5, 7 and 9-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I in the reply filed on 1/11/2007 is acknowledged. The traversal is on the ground(s) that "it would not take an extra effort to search for what is claimed in claims 18-21". This is not found persuasive because under the restriction guidelines shown in chapter 800, section 803 of the Manual of Patent Examining Procedure, *"For purposes of the initial requirement, a serious burden on the examiner may be prima facie shown by appropriate explanation of separate classification, or separate status in the art, or a different field of search as defined in MPEP § 808.02. That prima facie showing may be rebutted by appropriate showings or evidence by the applicant"*. The examiner believes that prima facie evidence has been shown that Group I can be separately classified in class 244/204 (aircraft sustentation by controlling boundary layer) and Group II can be separately classified in class 244/199.4 (subject matter in which the airflow modification means is a structure mounted on the tip of the airfoil) can be classified separately.

2. Applicant has withdrawn claims 18-21. Claims 1-17 have been examined.

Functional Language

3. A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from

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a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Specification

4. The disclosure is objected to because of the following informalities: To obtain priority to a provisional application, reference to this application must be included in an application data sheet (§ 1.76), or the specification must contain or be amended to contain such reference in the first sentence(s) following the title. Appropriate correction is required.

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) The Names Of The Parties To A Joint Research Agreement: See 37 CFR 1.71(g).
- (e) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), “Sequence Listings” (37 CFR 1.821(c)),

and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

- (f) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
- (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (g) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (h) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (i) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements,

compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

- (j) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (k) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (l) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4, 6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Richard et al. (U.S. Patent 2565990).

6. In regards to claim 1, Richard et al disclose a method of controlling an aircraft in a turn without the use of a rudder by producing induced yaw, comprising creating a net induced drag differential between an inboard wing to the turn and an outboard wing to the turn, whereby the net induced drag differential overcomes adverse yaw produced by the outboard wing (col. 1, lines 18-53). Note that Richard et al disclose manipulating "end-plates" on each wing to induce yaw. Although these "end-plates" do not necessarily increase the effective aspect ratio of the wings, they do create a moment force via an induced drag differential between the inboard and outboard wings. The induced drag is an inherent consequence of allowing stronger wing-tip vortices to form from the bottom of the inboard wing to the top.

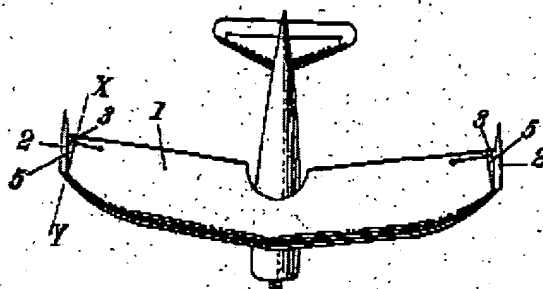
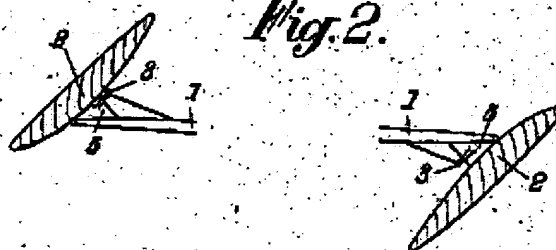
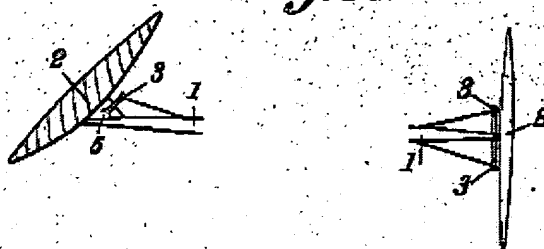
7. In regards to claim 2, Richard et al disclose that the net induced drag differential is produced by controlling the aircraft such that the induced drag experienced by the inboard wing is greater than the induced drag experienced by the outboard wing (see fig. 3 following). Note that the left (inboard) wing "end-plate" is pivoted and the right ("outboard") wing "end-plate" is in a "neutral" position. The pivoted "end-plate" induces greater drag than the "neutral" plate.

8. In regards to claim 4, Richard et al disclose spoiling a tip vortex on the outboard wing to reduce downwash coming off the outboard wing and reduce the induced drag experienced by the outboard wing; and increasing a tip vortex on the inboard wing to increase downwash coming off the inboard wing and increase the induced drag

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experienced by the inboard wing (col. 1, lines 18-53). Note that the neutrally positioned "end-plate" on the right ("outboard") wing spoils or blocks the wingtip vortex reducing downwash and the pivoted "end-plate" on the left ("inboard") wing allows a wingtip vortex increasing downwash.

9. In regards to claims 6 and 8, Richard et al disclose providing adaptive control surfaces as part of the inboard and outboard wings to form a variable planform to affect the induced drag of each of the inboard and outboard wings and produce the net induced drag differential to overcome adverse yaw produced by the outboard wing (see fig. 3 following). Although figure 3 is a frontal view of the plane, it is clear and inherent that the manipulation of the "end-plates" constitutes a variable planform. As previously stated, the manipulation of the "end-plates" induces the drag differential.

Fig. 1.*Fig. 2.**Fig. 3.*

Allowable Subject Matter

10. Claims 3, 5, 7 and 9-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: In regards to claims 3, 10, 11 and

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13, the closest prior art fails to disclose a method that includes , simultaneously increasing the effective aspect ratio (increasing the wing span) of the outboard wing to reduce downwash coming off the outboard wing and decreasing the effective aspect ratio (decreasing the wing span) of the inboard wing to increase downwash coming off the inboard wing.

Summary/Conclusion


11. Claims 1, 2, 4, 6 and 8 are rejected. Claims 3, 5, 7 and 9-17 are objected to.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin P. Lee whose telephone number is 571-272-8968. The examiner can normally be reached between the hours of 8:30am and 5:00pm on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MICHELLE CLEMENT
PRIMARY EXAMINER